

WHAT IS CLAIMED IS:

1 1. A method for transferring an information object across a network,
2 wherein a plurality of processors and storage devices are coupled to the network, wherein
3 the information object resides on a first storage device accessed by a provider process
4 executing on a first processor, wherein the information object is identified by a name that
5 also identifies the first storage device, wherein a consumer process executes on a second
6 processor accessing a second storage device, the method comprising the steps of
7 using the consumer process to generate a request for the information object
8 by using its name;
9 transferring the request over the network to the provider process;
10 transferring the information object across the network to the consumer
11 process;
12 storing the information object in the second storage device as a second
13 instance of the information object;
14 subsequent to the step of transferring the information object, performing
15 the following steps:
16 using the provider process to modify the information object;
17 using the network to transfer information about the modification; and
18 synchronizing the second instance of the information object by using the
19 transferred information about the modification.

1 2. The method of claim 1, wherein the information object is a data
2 object.

1 3. The method of claim 1, wherein the information object is a data
2 definition.

1 4. The method of claim 1, wherein the information object is an
2 algorithm.

1 5. The method of claim 1, wherein the information object has one or
2 more properties, further comprising the steps of
3 using the consumer process to formulate a relational criterion based
4 on the properties of the information object;

5 using the consumer process to submit a request to the provider
6 process by performing the substeps of
7 providing the location of the consumer process within the network;
8 providing the unique identifier associated with the information object; and
9 providing the relational criterion to the provider process;
10 using the provider process to detect when a change in the
11 properties of the data object satisfies the relational criterion {how is monitoring carried
12 out? Does provider poll?}; and
13 in response to changes in the properties of the information object,
14 transferring information about the changed properties across the network and updating the
15 second instance on the second storage device in accordance with the information about
16 the changed properties.

1 6. The method of claim 1, wherein the information object is stored in
2 a storage device local to the processor executing the provider process.

1 7. The method of claim 1, further comprising the step of using the
2 provider process to create the information object.

1 8. The method of claim 1, wherein a server process is used to control
2 modifications to the information object, the method further comprising the steps of
3 receiving modification requests at the server process in the form of
4 add/update/delete instructions;
5 using the server process to modify the information object in accordance
6 with the received requests; and
7 using the server process to transmit information on modifications to the
8 information object.

1 9. The method of claim 1, wherein a server process is used to control
2 requests of the consumer process, the method further comprising the steps of
3 receiving consumer requests at the server process in the form of
4 publish/subscribe/edit operations;
5 in response to a publish operation request, using the server process to
6 create a new instance of the information object;

7 in response to a subscribe operation request, using the server process to
8 cause information on modifications to the information object to update the second
9 instance of the information object on the second storage device; and
10 in response to edit operations {How is "edit" different from
11 add/update/delete? non-attribute editing?}

1 10. The method of claim 9, wherein robot processes execute on one or
2 more processors, the method further comprising the step of
3 executing a robot process in response to a publish operation to perform a
4 function on an instance of the information object.

1 11. The method of claim 1, wherein multiple instances of the
2 information object exist in multiple storage devices, the method further comprising the
3 step of
4 using a server process to prevent one or more of the multiple instances
5 from being updated.

1 12. The method of claim 1, wherein:
2 the properties include name/value pairs and wherein the step of "using the
3 consumer process to formulate a relational criterion . . ." includes the substep of
4 formulating a relational criterion based on one or more names of the
5 name/value pairs.

1 13. The method of claim 1, wherein:
2 the properties include name/value pairs, wherein the step of "using the
3 consumer process to formulate a relational criterion . . ." includes the substep of
4 formulating a relational criterion based on one or more values of the name/value pairs.

1 14. The method of claim 1, wherein:
2 the network is a client-server arrangement and the step of using the
3 network to transfer information about the modification includes the substep of
4 transferring the information in a series of multiple store-and-forward operations.

1 15. The method of claim 14, wherein the network is the Internet using
2 Internet Protocol for information transmissions.

1 16. The method of claim 15, wherein identification of information
2 objects uses an identifier that includes a Uniform Resource Locator as standardized on the
3 Internet.

1 17. The method of claim 1, wherein:
2 the information object is associated with a data definition defining the
3 class of the information object; and
4 each instance of the information object is an instance of the defined class.

1 18. A method for updating an information object in a first computer
2 system, wherein the first computer system is coupled to a computer network including
3 multiple other computer systems, wherein a server computer in the network includes a
4 class definition for creating information object instances of a specific type, wherein the
5 class definition includes a specification for attribute names and values that are to exist in
6 each information object instance of the class, the method comprising the following steps:
7 creating an information object instance from the class definition in the first
8 computer system;
9 identifying the existence of the information object instance in the first
10 computer system to one or more other computers in the network;
11 using the first computer system to define a relational condition based on
12 one or more of the attribute names and values;
13 communicating the relational condition to one or more computer systems
14 in the network;
15 using a computer in the network to detect when the relational condition is
16 satisfied; and
17 in response to the satisfaction of the relational condition, transferring at
18 least a portion of an instance of an information object that has attribute names and values
19 satisfying the relational condition to the first computer system.

1 19. The method of claim 18, wherein:
2 the class definition is for an email message object;
3 the class definition includes a subject attribute that can have a character
4 string value;

the step of "using the first computer system to define a relational condition based on one or more of the attribute names and values" further comprises the substep of specifying a subject keyword that must exist in the subject attribute's character string value; and

the step of "using a computer in the network to detect when the relational condition is satisfied" further comprises the substep of detecting whether the subject keyword exists in the subject attribute of any instance an email message object.

20. A method for synchronizing a data definition across a network, wherein a plurality of processors and storage devices are coupled to the network, wherein the data definition resides on a first storage device accessed by a provider process executing on a first processor, wherein a data object associated with the data definition resides in a second storage device accessed by a consumer process executing on a second processor, the method comprising the steps of

using the provider process to change the data definition;
propagating the changed data definition across the network; and
using the consumer process to access the data object according to the changed data definition.

21. The method of claim 20, further comprising
assigning a unique identifier to the data definition to associate the data definition with a storage place on the first storage device;
wherein the step of "propagating the changed data definition" includes the substep of propagating the unique identifier.

22. The method of claim 20, wherein multiple additional consumer processes executing on multiple processors each access and store the data definition, the method further comprising the steps of
using the consumer process to modify the changed data definition to create a second changed data definition;
transferring the second changed data definition to the provider process;
and
using the provider process to propagate the second changed data definition to the additional consumer processes.

1 23. A method for providing a data browser user interface, the data
2 browser user interface executing on a first computer system, the first computer system
3 including a processor coupled to a memory, a display device and a user input device, the
4 computer system further coupled to a computer network including a plurality of
5 interconnected computer systems, wherein a plurality of information objects that are
6 instances of class definitions resides in the computer systems, and wherein the class
7 definitions include attribute/value pairs, the method comprising the following steps:
8 displaying one or more information objects;
9 accepting signals from the user input device to select an information
10 object, the information object being associated with at least one provider process
11 executing on a computer system in the network;
12 showing one or more of the attribute/value pairs of the selected
13 information object;
14 accepting signals from the user input device to make a relational condition
15 based on the attribute/value pairs of the selected information object;
16 transferring the relational condition, an identifier for the selected
17 information object and an identifier for the first computer system to one or more
18 computers in the network; and
19 when the relational condition is satisfied by one or more information
20 objects in the network, receiving and displaying at least a portion of an information object
21 that satisfies the relational condition.

1 24. The method of claim 23, wherein the step of displaying one or
2 more information objects includes the substep of
3 displaying a hierarchical tree having a plurality of nodes, wherein each
4 node can represent an information object or a collection of information objects.

1 25. The method of claim 24, wherein the step of displaying one or
2 more information objects further includes the substep of
3 displaying additional items at the nodes of the tree, wherein the additional
4 items include files.

1 26. The method of claim 25, wherein the additional items include
2 hyperlinks.

1 27. The method of claim 25, wherein the additional items include
2 commands.

1 28. The method of claim 23, wherein the predetermined convention
2 includes a domain name, path, and object name.

1 29. The method of claim 23, further comprising the step of
2 saving the relational condition so that it can be recalled at a later time for
3 re-use.

1 30. The method of claim 23, wherein the selected information object
2 includes executable instructions, the method further comprising the step of
3 executing the executable instructions at the first computer system.

1 31. A system for distributing information objects over the Internet, the
2 system using a computer coupled to the Internet, wherein the computer includes a user
3 input device and a processor, wherein the Internet includes an information object having
4 attributes, the system comprising
5 accepting signals from the user input device to specify a relational
6 condition using one or more of the attributes;
7 using the processor to transfer an indication to the Internet of the specified
8 relational condition; and
9 using the processor to receive one or more information objects satisfying
10 the specified condition.

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1 32. The system of claim 31, wherein one or more attributes of the
2 information objects include associated values, wherein the Internet includes a server
3 computer for receiving queries in the form of specified relational conditions and for
4 comparing query conditions with information object attributes to identify information
5 objects that match the query conditions, the system further comprising
6 using the server computer to receive the specified relational condition;
7 using the server computer to detect when information objects' attributes
8 and values satisfy the specified relational condition; and
9 transferring information to the processor to identify the detected
10 information objects.



- 1 33. A system for processing information objects as disclosed by the
- 2 text herein.